

5. The process of claim 4 wherein the angle is between 20 degrees and 70 degrees.

5 6. The process of claim 1 wherein the mechanical work is applied to the suspension in multiple stages.

10 7. The process of claim 6 wherein mechanical work is applied to the suspension utilizing a first stage under conditions to generate hydraulic pressure and mechanical shear stress sufficient to wet the pieces of bonded fibrous materials and separate at least some portions of fibers and fiber-like components from the bonded materials and utilizing a second stage under conditions to generate hydraulic pressure and mechanical shear stress conditions sufficient to rupture the bonded fibrous materials, fibers and fiber-like components into substantially individual fibers and fiber-like components.

20 8. The process of claim 6 wherein the clearance between the rotating blades and the fixed blades at the closest point during the first stage is between about 20 millimeters and about 100 millimeters and between about 1 millimeter and about 20 millimeters during the second stage.

25 9. The process of claim 1 wherein the amount of mechanical work applied to the liquid suspension is greater than about 6 Horsepower - 24 hours per dry ton of bonded fibrous material.

30 10. The process of claim 1 wherein the bonded fibrous materials are selected from woven fabrics, knitted fabrics, nonwoven webs and combinations thereof.

35 11. The process of claim 10, wherein the nonwoven webs are webs that are thermally bonded, adhesively bonded,

mechanically entangled, solvent bonded, hydraulically entangled and combinations thereof.

12. The process of claim 1 wherein the bonded fibrous materials are composed of synthetic fibrous materials, natural fibrous materials and combinations thereof

13. The process of claim 12 wherein the synthetic fibrous material includes thermoplastic fibers and filaments.

14. The process of claim 1 wherein the substantially individual fibers and fiber-like components have a relatively uniform length distribution.

15. The process of claim 14, wherein the fiber and fiber-like material has a length distribution that spans approximately 7 millimeters.

16. Fiber and fiber-like materials produced according to the process of claim 1.

17. Recycled synthetic fibers and fiber-like materials comprising:

at least one thread element composed of synthetic material having at least one irregular distortion generated by hydraulic fracture of the thread element to separate it from a bonded fibrous material while the bonded fibrous material is suspended in a liquid.

18. The recycled synthetic fibers and fiber-like materials of claim 17, wherein the thread element has a length ranging from about 1 millimeter to about 15 millimeters.

19. The recycled synthetic fibers and fiber-like materials of claim 18, wherein the thread element has a

27. The nonwoven fibrous web of claim 25 wherein the web further includes non-recycled natural fibrous materials, non-recycled natural synthetic materials, recycled natural
5 fibrous materials, particulates materials and combinations thereof.

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